

REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application. Claims 3 and 76 are amended. Claims 26-72 were previously withdrawn from consideration and are canceled without prejudice as part of this Response. Claims 26-72 are being pursued in one or more divisional applications. Claims 1-25 and 73-76 are pending in this application.

As part of this Response, claims 3 and 76 have been amended to correct typographical errors. These amendments are cosmetic in nature and have not been made to overcome, and are not to be interpreted as having been made to overcome, any rejections of the claims.

35 U.S.C. § 102

Claims 1-8, 10-12, 14-19, 21-23, and 73-75 stand rejected under 35 U.S.C. §102(e) as being unpatentable over U.S. Patent No. 6,801,937 to Novaes et al. (hereinafter "Novaes"). Applicant respectfully submits that claims 1-8, 10-12, 14-19, 21-23, and 73-75 are not anticipated by Novaes.

Novaes is directed to method, system and program products for defining nodes to a cluster (see Title). As discussed in the Abstract of Novaes, various components are provided to manage a clustered environment. These components include a System Registry that provides a global data storage; a Configuration manager that stores data locally on nodes of the clustered environment and globally within the System Registry; a Liveness component to provide status of communications paths of the cluster; a Group Services component that provides services to one or more other components of the clustered environment; and a

Resource Management component that communicates with one or more resource controllers of the clustered environment.

With respect to claim 1, claim 1 recites:

A multi-tiered management architecture comprising:
an application development tier at which applications are developed for execution on one or more computers;
an application operations tier at which execution of the applications is managed; and
a cluster operations tier to manage the operation of the computers without concern for what applications are executing on the one or more computers.

Applicant respectfully submits that no such multi-tiered management architecture is disclosed in Novaes.

The Resource Management component of Novaes is cited in the January 28, 2005 Office Action as teaching the application development tier of claim 1 (see, January 28, 2005 Office Action at ¶ 2, p. 2). However, the Resource Management component of Novaes provides a basic communications layer to other cluster services, which are not part of the core cluster services (see, col. 6, lines 30-32). Applicant respectfully submits that a component that provides a basic communications layer to other cluster services does not disclose an application development tier at which applications are developed for execution on one or more computers. The Resource Management component of Novaes provides a basic communications layer, not a tier at which applications are developed. There is no discussion or mention in the cited portion of Novaes of applications being developed, much less a tier of an architecture at which applications are developed for execution on one or more computers. Accordingly, Applicant respectfully submits that Novaes cannot disclose an application

development tier at which applications are developed for execution on one or more computers as recited in claim 1.

Furthermore, the Distributed Configuration Manager of Novaes is cited in the January 28, 2005 Office Action as teaching the cluster operations tier of claim 1 (see, January 28, 2005 Office Action at ¶ 2, p. 2). However, the cited portions of Novaes describe that the Distributed Configuration Manager is utilized to configure the cluster system and to coordinate the synchronization of the cluster configuration databases (see, col. 5, lines 15-16), and is also responsible for starting the other cluster components with the appropriate cluster configuration and stop the other cluster components when appropriate (see, col. 5, lines 42-46). Applicant respectfully submits that nowhere in these discussions of the Distributed Configuration Manager of Novaes is there any discussion or mention of a tier to manage the operation of the computers without concern for what applications are executing on the computers. As the Distributed Configuration Manager of Novaes is responsible for starting and stopping other cluster components (and each component executes one or more corresponding processes on one or more nodes of the cluster – see, col. 5, lines 5-8), it cannot disclose a tier to manage the operation of the computers without concern for what applications are executing on the one or more computers. Accordingly, Applicant respectfully submits that Novaes cannot disclose a cluster operations tier to manage the operation of the computers without concern for what applications are executing on the one or more computers as recited in claim 1.

For at least these reasons, Applicant respectfully submits that claim 1 is allowable over Novaes.

Given that claims 2 and 5-8 depend from claim 1, Applicant respectfully submits that claims 2 and 5-8 are likewise allowable over Novaes for at least the reasons discussed above with respect to claim 1.

With respect to claim 3, claim 3 depends from claim 1 and Applicant respectfully submits that claim 3 is allowable over Novaes at least because of its dependency on claim 1. Furthermore, claim 3 recites:

A management architecture as recited in claim 2, wherein the application operations tier is responsible for securing sub-boundaries within the computer cluster boundary to restrict communication between computers within the computer cluster.

Applicant respectfully submits that Novaes does not disclose any such application operations tier responsible for securing sub-boundaries within the computer cluster boundary as recited in claim 3.

In the January 28, 2005 Office Action, Novaes at col. 6, lines 19-30, is cited as teaching claim 3 (see, January 28, 2005 Office Action at ¶ 2, p. 3). However, the cited portion of Novaes discusses a Group Services component that provides generic membership services to the other components (see, col. 6, lines 19-20). Although the cited portion does mention that the Group Services component includes facilities with which the members of a group can control membership to the group and maintain a group state (see, col. 6, lines 22-24), there is no discussion or mention in the cited portion of Novaes that a group of Novaes establishes a sub-boundary within a computer cluster boundary to restrict communication between computers within the computer cluster. Simply mentioning controlling membership to a group and a group state does not disclose securing sub-boundaries within the computer cluster boundary to restrict communication between computers within the computer cluster. Accordingly,

Applicant respectfully submits that Novaes cannot disclose wherein the application operations tier is responsible for securing sub-boundaries within the computer cluster boundary to restrict communication between computers within the computer cluster as recited in claim 3.

For at least these reasons, Applicant respectfully submits that claim 3 is allowable over Novaes.

With respect to claim 4, claim 4 depends from claim 1 and Applicant respectfully submits that claim 4 is allowable over Novaes at least because of its dependency on claim 1. Furthermore, claim 4 recites:

A management architecture as recited in claim 1, wherein the application operations tier is implemented at an application operations management console at a location remote from the one or more computers.

Applicant respectfully submits that Novaes does not disclose any such application operations tier implemented at an application operations management console at a location remote from the one or more computers as recited in claim 4.

In the January 28, 2005 Office Action, the Group Service Component of Novaes is cited as teaching the application operations tier (see, January 28, 2005 Office Action at ¶ 2, p. 2). Each component in Novaes executes one or more corresponding processes on one or more nodes of the cluster (see, col. 5, lines 5-8). Applicant respectfully submits that the Group Service Component of Novaes cannot disclose the application operations tier of claim 4 because in order to satisfy the language of claim 4 the Group Service Component of Novaes would have to be implemented at an application management console at a location remote from the one or more computers. Such a scenario would not be possible in Novaes because the Group Service Component executes processes on the nodes of

the cluster – it is not possible for the components of Novaes to be executing processes on the nodes yet execute those processes at a location remote from the nodes. Accordingly, Applicant respectfully submits that Novaes cannot disclose wherein the application operations tier is implemented at an application operations management console at a location remote from the one or more computers as recited in claim 4.

For at least these reasons, Applicant respectfully submits that claim 4 is allowable over Novaes.

With respect to claim 10, claim 10 depends from claim 1 and Applicant respectfully submits that claim 10 is allowable over Novaes at least because of its dependency on claim 1. Furthermore, claim 10 recites:

A management architecture as recited in claim 1, wherein the cluster operations tier monitors hardware operation of the one or more computers and detects failures of the hardware.

Applicant respectfully submits that no such cluster operations tier is disclosed in Novaes.

In the January 28, 2005 Office Action, Novaes at col. 6, lines 5-20 and col. 8, lines 15-20 is cited as teaching wherein the cluster operations tier monitors hardware operation of the one or more computers and detects failures of the hardware as recited in claim 10 (see, January 28, 2005 Office Action at ¶ 2, p. 4). These cited portions of Novaes discuss a Liveness component that provides the status of communications adapters and the availability of communications paths among nodes in the cluster (see, col. 6, lines 3-5). However, in the rejection of claim 1, the Distributed Configuration Manager of Novaes rather than the Liveness component is cited as teaching the cluster operations tier (see, January

28, 2005 Office Action at ¶ 2, p. 2). Thus, Applicant respectfully submits that in order for Novaes to teach the elements of claim 10, the Distributed Configuration Manager of Novaes rather than the Liveness component of Novaes would need to be disclosed as monitoring hardware operation of the one or more computers and detecting failures of the hardware. However, there is no discussion in Novaes of the Distributed Configuration Manager performing such monitoring and detecting, and the Distributed Configuration Manager is not cited as disclosing such monitoring and detecting. Accordingly, Applicant respectfully submits that Novaes cannot disclose wherein the cluster operations tier monitors hardware operation of the one or more computers and detects failures of the hardware as recited in claim 10.

For at least these reasons, Applicant respectfully submits that claim 10 is allowable over Novaes.

With respect to claim 11, claim 11 depends from claim 1 and Applicant respectfully submits that claim 11 is allowable over Novaes at least because of its dependency on claim 1. Furthermore, claim 11 recites:

A management architecture as recited in claim 1, wherein the cluster operations tier takes corrective action in response to a hardware failure of one of the computers.

Applicant respectfully submits that no such cluster operations tier is disclosed in Novaes.

In the January 28, 2005 Office Action, Novaes at col. 6, lines 25-30 and col. 7, lines 55-65 is cited as teaching wherein the cluster operations tier takes corrective action in response to a hardware failure of one of the computers as recited in claim 11 (see, January 28, 2005 Office Action at ¶ 2, p. 4). These cited

portions of Novaes discuss a Group Services component that provides generic membership services to the other components (see, col. 6, lines 19-20). However, in the rejection of claim 1, the Distributed Configuration Manager of Novaes rather than the Group Services component is cited as teaching the cluster operations tier (see, January 28, 2005 Office Action at ¶ 2, p. 2). Thus, Applicant respectfully submits that in order for Novaes to teach the elements of claim 11, the Distributed Configuration Manager of Novaes rather than the Group Services component of Novaes would need to be disclosed as taking corrective action in response to a hardware failure of one of the computers. However, there is no discussion in Novaes of the Distributed Configuration Manager taking such corrective action, and the Distributed Configuration Manager is not cited as taking such corrective action. Accordingly, Applicant respectfully submits that Novaes cannot disclose wherein the cluster operations tier takes corrective action in response to a hardware failure of one of the computers as recited in claim 11.

For at least these reasons, Applicant respectfully submits that claim 11 is allowable over Novaes.

Given that claims 12 and 14 depend from claim 11, Applicant respectfully submits that claims 12 and 14 are likewise allowable over Novaes for at least the reasons discussed above with respect to claim 11.

With respect to claim 15, claim 15 recites:

A co-location facility system comprising:

a plurality of node clusters each corresponding to a different customer; and

a cluster operations management console corresponding to at least one of the node clusters and configured to manage hardware operations of the at least one node cluster.

Applicant respectfully submits that no such co-location facility system is disclosed in Novaes.

In the January 28, 2005 Office Action, Novaes at col. 4, lines 55-65 is cited as teaching a plurality of node clusters each corresponding to a different customer as recited in claim 15 (see, January 28, 2005 Office Action at ¶ 2, p. 5). The cited portion of Novaes discusses cluster membership and that cluster membership can be viewed as a list of nodes (see, col. 4, lines 54-55). The cluster membership refers to the fact that a node is considered to be a member of the cluster when it is defined and operational (see, col. 4, lines 44-47). However, nowhere in this discussion of cluster membership is there any mention of each of a plurality of node clusters corresponding to a different customer. In fact, a search through Novaes for “customer” shows that “customer” does not appear in this cited portion or anywhere else of Novaes. Without any such discussion or even mention of node clusters corresponding to different customers, Applicant respectfully submits the Novaes cannot disclose a plurality of node clusters each corresponding to a different customer as recited in claim 15.

For at least these reasons, Applicant respectfully submits that claim 15 is allowable over Novaes.

Given that claims 16-18 and 21-23 depend from claim 15, Applicant respectfully submits that claims 16-18 and 20-23 are likewise allowable over Novaes for at least the reasons discussed above with respect to claim 15.

With respect to claim 19, claim 19 depends from claim 15 and Applicant respectfully submits that claim 19 is allowable over Novaes at least because of its dependency on claim 15. Furthermore, claim 19 recites:

A system as recited in claim 15, wherein each of the plurality of node clusters includes a plurality of nodes configured to receive node control commands from an application operations management console located remotely from the co-location facility.

Applicant respectfully submits that no such receipt of node control commands from an application operations management console located remotely from the co-location facility is disclosed in Novaes.

Each component in Novaes executes one or more corresponding processes on one or more nodes of the cluster (see, col. 5, lines 5-8). Thus, Novaes discloses that the components of the cluster architecture are executed on the nodes of the cluster, not on a console located remotely from those nodes. As there is no discussion or mention in Novaes of the components of the cluster architecture executing on a console located remotely from the system that includes the nodes, Applicant respectfully submits that Novaes cannot disclose wherein each of the plurality of node clusters includes a plurality of nodes configured to receive node control commands from an application operations management console located remotely from the co-location facility as recited in claim 19.

For at least these reasons, Applicant respectfully submits that claim 19 is allowable over Novaes.

With respect to claim 25, claim 25 depends from claim 15 and Applicant respectfully submits that claim 25 is allowable over Novaes at least because of its dependency on claim 15. Furthermore, claim 25 recites:

A system as recited in claim 15, wherein one or more of the nodes in a node cluster are leased by the customer from an operator of the co-location facility.

Applicant respectfully submits that no such leasing of one or more nodes in a node cluster is disclosed in Novaes.

In the January 28, 2005 Office Action, Novaes at col. 3, lines 35-50 is cited as teaching wherein one or more of the nodes in a node cluster are leased by the customer from an operator of the co-location facility as recited in claim 25 (see, January 28, 2005 Office Action at ¶ 2, p. 7). The “negotiated” aspects of this portion are relied on as teaching the lease aspects of claim 25. However, the cited portion of Novaes discusses that if resources are to be shared, then the operating system copies negotiate the access such that the integrity of the resources is preserved (see, emphasis added, col. 3, lines 44-49). As an example, Novaes discusses that two copies of an operating system which need to write multiple blocks of data to a certain segment of a storage device negotiate the access to the segment, otherwise the order of the writing operations may compromise the integrity of the data being written (see, col. 3, lines 49-53).

Thus, it can be seen that the negotiation discussed in the cited portion of Novaes is directed to negotiation performed by the operating system copies in order to maintain the integrity of resources when those resources are shared. There is no discussion or mention in Novaes of nodes in the clustered environment being leased, much less of the nodes being leased by a customer from an operator

of a co-location facility. Accordingly, Applicant respectfully submits that Novaes cannot disclose wherein one or more of the nodes in a node cluster are leased by the customer from an operator of the co-location facility as recited in claim 25.

For at least these reasons, Applicant respectfully submits that claim 25 is allowable over Novaes.

With respect to claim 73, claim 73 recites:

A multi-tiered computer management architecture comprising:

a first tier corresponding to an owner of a computer;

a second tier corresponding to a hardware operator that is to manage hardware operations of the computer;

a third tier corresponding to a software operator that is to manage software operations of the computer; and

a fourth tier corresponding to the owner, wherein the owner operates in the fourth tier except when revoking the rights of the hardware operator or software operator.

Applicant respectfully submits that no such multi-tiered computer management architecture is disclosed in Novaes.

In the January 28, 2005 Office Action, the operating system instance of Fig. 4 of Novaes is cited as teaching a first tier corresponding to an owner of a computer as recited in claim 73 (see, January 28, 2005 Office Action at ¶ 2, p. 7). However, Applicant respectfully submits that an operating system instance is not an owner of a computer. An operating system instance may execute on a computer, but it is not an owner of that computer.

Referring now to the fourth tier of claim 73, and assuming for the sake of argument that an operating system instance were an owner of the computer, then using the language of claim 73 Novaes would need to disclose a fourth tier corresponding to the operating system instance, wherein the operating system

instance operates in the fourth tier except when revoking the rights of the hardware operator or software operator. However, Applicant respectfully submits that there is no disclosure of two such tiers in Novaes, much less of an operating system instance operating in one of the two tiers except when revoking the rights of a hardware operator or software operator. Even though in order to satisfy the language of claim 73 Novaes would need to disclose a fourth tier corresponding to the operating system instance, the January 28, 2005 Office Action makes no assertion that Novaes discloses such a fourth tier. Rather, the January 28, 2005 Office Action appears to rely on the Resource Manager Process as disclosing the fourth tier. However, since the fourth tier refers to the same owner of the computer as the first tier, Applicant respectfully submits that the Resource Manager Process cannot be relied on as disclosing the owner of the computer in the fourth tier while the operating system instance is relied on as disclosing the owner of the computer in the first tier.

For at least these reasons, Applicant respectfully submits that claim 73 is allowable over Novaes.

Given that claims 74 and 75 depend from claim 73, Applicant respectfully submits that claims 74 and 75 are likewise allowable over Novaes for at least the reasons discussed above with respect to claim 73.

With respect to claim 76, claim 76 depends from claim 73 and Applicant respectfully submits that claim 76 is allowable over Novaes at least because of its dependency on claim 73. Furthermore, claim 76 recites:

An architecture as recited in claim 73, further comprising using a plurality of key pairs, each key pair including a private key and a public key, to securely communicate between the computer and a management device corresponding to the hardware operator, as well as between the computer and a management device corresponding to the software operator.

Applicant respectfully submits that no such architecture is disclosed in Novaes.

Applicant respectfully submits that Novaes includes no discussion or mention of a plurality of key pairs, much less of using the plurality of key pairs as recited in claim 76. Without any such discussion or mention, Applicant respectfully submits that Novaes cannot disclose the architecture of claim 76. Furthermore, although the January 28, 2005 Office Action asserts that Novaes teaches the architecture of claim 76 (see, January 28, 2005 Office Action at ¶ 2, p. 8), there is no indication of where in Novaes the plurality of keys is allegedly disclosed. If this rejection is maintained, Applicant respectfully requests that the portion(s) of Novaes that are being relied on as disclosing the plurality of keys of claim 76 be identified.

For at least these reasons, Applicant respectfully submits that claim 76 is allowable over Novaes.

Applicant respectfully requests that the §102 rejections be withdrawn.

35 U.S.C. § 103

Claims 9 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Novaes in view of U.S. Patent No. 6,801,937 to Hipp.

Applicant respectfully submits that this rejection of claims 9 and 13 is not clear because it is not clear what the “Hipp” reference is. The “Hipp” reference is cited as being U.S. Patent No. 6,801,937, but U.S. Patent No. 6,801,937 is Novaes and does not list any inventor by the name of Hipp. Furthermore, the “Hipp” reference is cited as disclosing “sound an alarm”, and Applicant has not been able to find such language at the cited portion of, or elsewhere in, U.S. Patent No. 6,801,937. If this rejection of claims 9 and 13 is maintained, Applicant respectfully requests that the rejection be clarified to identify the “Hipp” reference.

Claims 20 and 24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Novaes in view of U.S. Patent No. 6,529,953 to Van Renesse (hereinafter “Van Renesse”). Applicant respectfully submits that claims 20 and 24 are not obvious over Novaes in view of Van Renesse.

With respect to claim 20, claim 20 depends from claim 19 and Applicant respectfully submits that claim 20 is allowable over Novaes at least because of its dependency on claim 19. Van Renesse is not cited as curing, and does not cure, the deficiencies of Novaes as discussed above with respect to claim 19. For at least these reasons, Applicant respectfully submits that claim 20 is allowable over Novaes in view of Van Renesse.

With respect to claim 24, claim 24 depends from claim 15 and Applicant respectfully submits that claim 24 is allowable over Novaes at least because of its dependency on claim 15. Van Renesse is not cited as curing, and does not cure,

the deficiencies of Novaes as discussed above with respect to claim 15. For at least these reasons, Applicant respectfully submits that claim 24 is allowable over Novaes in view of Van Renesse.

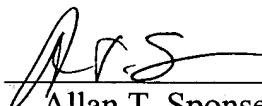
Applicant respectfully requests that the §103 rejections be withdrawn.

Conclusion

Claims 1-25 and 73-76 are in condition for allowance. Applicant respectfully requests reconsideration and issuance of the subject application. Should any matter in this case remain unresolved, the undersigned attorney respectfully requests a telephone conference with the Examiner to resolve any such outstanding matter.

Respectfully Submitted,

Date: 5/31/05

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